CS270 : HW0

Q1 : Polynomials

a) 1 grows faster than 2 because the polynomial with the higher degree leading term will grow faster than the one with the lower degree leading term. In this case, 1 has a higher degree leading term than 2 since x^3 has a higher degree than $7x^2$.

b) 1 grows faster than 2 because the polynomial with the higher degree leading term will grow faster than the one with the lower degree leading term. In this case, the leading term of 1 is x^7 and the leading term of 2 is x^6. Since x^7 has a higher degree than x^6, we can conclude that 1 grows faster than 2.

c) x^4 and $4x^4$ are respectively the leading terms of 1 and 2. Since they are both of the same degree, the polynomial with the higher coefficient will grow faster than the one with the lower coefficient. Since the coefficient of 1, 1, is lower than the coefficient of 2, 4, then 2 grows faster than 1.

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Q2: Logarithms

a) $\log_2(x) = 8 \iff x = 2^8$

b) $\log_5(x) = \log_5(2) + 25$

$\iff \log_5(x) = \log_5(2) + \log_5(5^{25})$

$\iff \log_5(x) = \log_5(2 \times 5^{25})$

$\iff x = 2 \times 5^{25}$

c) $x = \log_4(32)$

$\iff 4^x = 32$

$\iff 2^{2x} = 2^5$

$\iff 2x = 5$

$\iff x = \frac{5}{2}$

Q3: Working with Objects

greetings[0] = Howdy

greetings[1] = Hello

greetings[2] = Hey

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